

**ABSTRACT**

The invention provides methods and devices for the electrochemical generation of nitrogen from organic nitrogen compounds, such as hydrazides ( $\text{RCONHNH}_2$ ), the corresponding organic hydrazino-carboxylates ( $\text{RCO}_2\text{NHNH}_2$ ) and amino-guanidine salts (e.g. aminoguanide bicarbonate  $\text{H}_2\text{NNHC}(\text{NH})\text{NH}_2 \cdot \text{H}_2\text{CO}_3$ ). A variety of organic hydrazides and hydrazino-carboxylates may be used, and empirically tested for performance. For example, in the hydrazides and hydrazino-carboxylates "R" may be an alkyl, alkenyl, alkynyl or aryl group, in some embodiments methyl, ethyl, or benzyl. The alkyl, alkenyl and alkynyl groups may be branched or unbranched, substituted or unsubstituted. The utility of such compounds may be routinely assayed in accordance with the guidance provided herein, including the Examples set out herein in which alternative nitrogen compounds may be substituted for routine test purposes.